CU1

Description

The CU1 is an on-delay timing unit designed to energize and thus unlock guard locking devices after a preset time delay expires. It can be used with power to unlock devices, like the Allen-Bradley Guardmaster Atlas, Spartan, 440G-MT, or TLS-GD2, on machines which have a run down cycle or do not stop immediately. It may also be incorporated into other parts of the safety related controls system, should a predictable, on-delay be required.

A removable cover allows access to the AC power switch, the replaceable fuse, and the DIP switches & potentiometer which control the timing. Power to the CU1 can be either 24V AC/DC (+/- terminals) or 110/230V AC (A1/A2 terminals). If 110V AC or 230V AC power is used, an internal switch must be set to the appropriate position.

The X1/X2 terminals are designed to monitor the performance of the contactors which isolate the power to the moving parts of the machinery. The timing can not begin until the X1/X2 loop is closed. The X1/X2 loop must remain closed during the whole timing cycle. Opening the X1/ X2 loop during the timing cycle causes the time to be reset to zero. If monitoring is not needed, the X1/X2 loop can be linked.

A typical operation starts with the safety outputs (13/14 and 23/24) open and the X1/X2 loop closed.

1. Apply power to A1/A2 or +/-.
    a. The Power LED turns ON and the Output LED turns red.
    b. After the time delay expires, the Output LED turns green and the safety outputs (13/14 and 23/24) close.
2. Remove power to A1/A2 or +/-.
    a. Immediately, the safety contacts (13/14 and 23/24) open, the Power LED turns off and the Output LED turns Off.
3. Go to step 1.

The status of the CU1 can be signaled to the Remote Indicator Unit via terminals R1/R2/R3, or to a PLC or other indicator by using the N.C. auxiliary contacts (31/32).

Features

- Category 1 per EN 954-1
- Stop category 1
- Timed on-delay output 0.1s to 40 min
- 2 N.O. safety outputs

Specifications

Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-5-1, ANSI B11.19, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO13849-1)
Certifications	—
Power Supply	24V AC/DC, 115V AC, or 230V AC
Power Consumption	<4 VA
Safety Inputs	1 N.O.
Input Resistance, Max.	500 Ω
Reset Type	Automatic/Manual
Safety Outputs	Delayed—3 N.O. Safety Delayed—2 N.C. Auxiliary
Output Utilization per IEC60947-5-1 (Inductive)⋆	B300, AC-15: 4 A/250V AC, 4 A/125V AC P300, DC-13: 3 A/24V DC
Thermal Current	2 x 4 A, nonswitching
Time Range (Off-Delay)	0.1s...40 min.
Fuses, Input	500 mA time lag (external)
Fuses, Output	5 A quick acting (external)
Switching Current @ Voltage, Max.	10 mA/10V
Status Indicators	Red = Power on Red/Green = Timing/Output on
Rated Impulse withstand Voltage	2500V
Operating Temperature [C (F)]	-10...55° (14...131°)
Relative Humidity	90%
Enclosure Type Rating	IP40, DIN 0470
Terminal Protection	IP20 DIN 0470
Conductor Size, Max.	1 x 2.5 mm2 (14 AWG) stranded 1 x 4 mm2 (12 AWG) solid
Installation Group	C in accordance with VDE 0110
Pollution Degree	3
Torque Settingste—terminal screws	1 N•m (8 lb•in)
Housing Material	Red Polycarbonate
Mounting	35 mm DIN Rail
Weight [g (lb)]	360 (0.79)
Electrical Life	220V AC/4A/880VA cosϕ = 3.5—100,000 operations 220V AC/1.7A/375VA cosϕ = 0.6—500,000 operations 30V DC/2A/60W—1,000,000 operations 10V DC/0.01A/0.1W—2,000,000 operations
Mechanical Life	2,000,000 operations
Vibration	0.75 mm (0.30 in) peak, 10...55 Hz
Shock	30 g, 11 ms half-sine

⋆ See Output Ratings see **Output Ratings** for details. Consult factory for ratings not shown.

Product Selection

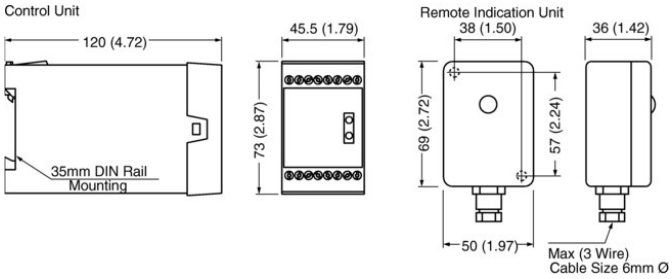
Inputs	Safety Outputs	Auxiliary Outputs	Power Supply	Cat. No.
1 or 2 N.O., 1 or 2 N.C., LC, 2 hand control, enabling switch	Delayed—3 N.O.	Delayed—2 N.C.	24V AC/DC, 115V AC, or 230V AC	440R-T07114

Accessories

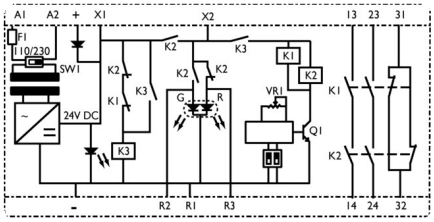
Description	Page Number	Cat. No.
500 mA fuse—Bussmann Cat. No. ETF-500 mA		440R-A31562
CU1 Remote Indication Unit	—	440R-A07138

Approximate Dimensions

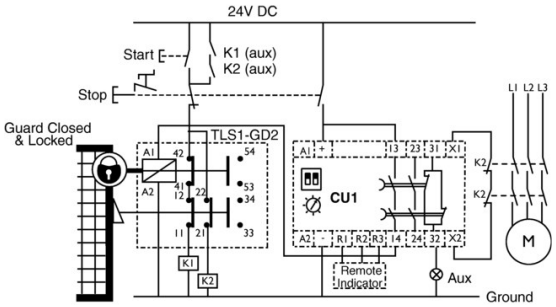
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Block Diagram

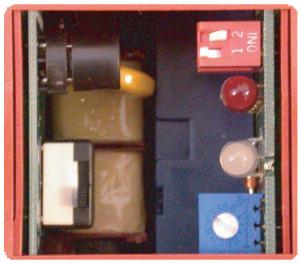


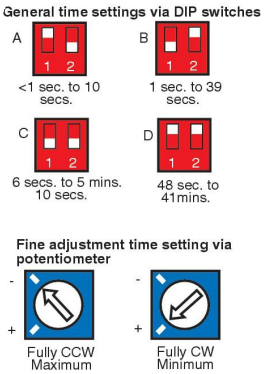
Typical Wiring Diagrams



Guard Locking Safety Gate, Delayed Gate Release, Automatic Reset, Monitored Output

Application Details





DIP switches general time setting and the potentiometer fine tunes the time settings. Easy access 500mAT replaceable fuse.